the treatment. When more than one treatment is to be given, from four to six weeks should elapse between applications, not alone to await full reaction, but to allow the skin to recover from the cumulative effect of the rays. The fibroid growths best suited to irradiation are the intramural type. The subperitoneal and particularly the pedunculated variety had best be removed surgically according to Meyer. The submucous or polypoid type of fibroids are practically contra-indications to the use of radiotherapy. When complications, and above all malignancy do not exist, the results are uniformly good. A careful examination and correct diagnosis are essential or the result may be anything but pleasant.

PATHOLOGY AND BACTERIOLOGY

UNDER THE CHARGE OF

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Non-Lactose Fermenting Organisms from the Feces of Influenza Patients.—Stimulated by the occurrence of intestinal manifestations of influenza in the recent pandemic SHERWOOD, DOWNS and MCNAUGHT (*Jour. Infect. Dis.*, 1920, xxvi, 16) undertook bacteriological examination of feces of cases of this particular type. Eosin-methylene blue agar plates and Russell's medium were used for growing cultures from feces and following isolation, strains were grown on the various sugar and alcohol media. Enteriditis-like organisms were isolated from a high percentage of influenza cases of above-mentioned type. By means of agglutination and absorption tests (modified Dryer technic) strains of enteriditis like organisms were apparently placed in four groups. B. typhosus was isolated from three of 32 cases studied. There seemed to be no correlation between the nature of the stools and the presence of the enteriditis-like bacilli.

Hemolytic Streptococci in the Throat in Certain Acute Infectious Diseases.—OTTERAAEN (*Jour. Infect Dis.*, 1920, xxvi, 23) reports the relative occurrence of hemolytic streptococci in the throats of 300 patients. Swabs taken from mouth, nose and throat were cultured on blood agar plates. Fermentation tests of 50 strains gave results showing that according to Holman's classification the strains fell into the pyogenes and anginosus groups. Fifty-eight of 130 diphtheria cases and 98 of 125 scarlet fever cases gave positive streptococcus cultures. Results show that the throat is the area of predilection, while the nose and mouth do not seem to harbor the organisms frequently. The great majority of these patients were children, most of whom had more or less enlarged tonsils. Virulence for animals of the organisms studied was low. Human leukocytes, in the presence of normal human serum, easily phagocyted the hemolytic streptococci which had been cultivated on media for a time. Other hemolytic streptococci isolated from lesions in the body where they demonstrated invasive qualities were not phagocyted until grown on artificial media, which seems to show that resistance of hemolytic streptococci to opsonins may be lost rapidly in artificial cultivation. After a comparative study the author suggests the enrichment method as preferable to direct surface plate inoculations in examinations for streptococci.

Further Attempts to Reduce the Resistance of the Guinea-pig to Tuberculosis.—Attempts were made by Corper (*Am. Rev. Tuberc.*, 1919, iii, 605) to reduce the resistance of experimental animals to the tubercle bacilli with a view of hastening the animal diagnosis of tuberculosis. The experiments also offered an interesting study on tissue resistance when injured. A variety of methods have been advocated by various authors, for the early diagnosis of tuberculosis by injecting suspected material into different regions where tissue damage had been induced. The author studied the effect of trauma, mechanically induced or resulting from chemical irritants. Glands were crushed; lampblack or powdered glass were injected; or chemical irritants as turpentine, croton oil, cantharidin, and capsicum were injected. In the region of the injury small amounts of tubercle bacilli were inoculated, using the macroscopic-anatomic tuberculosis as an index of the acceleration of the tuberculosis in the guinea-pig. It was found that gland crushing, the injection of turpentine, croton oil, cantheridin and capsicum just prior to injection of virulent tubercle bacilli had no appreciable effect upon the infection as compared with that obtained in control guinea-pigs. Lampblack simultaneously injected with tubercle bacilli had a retarding influence while powdered glass enhanced the development of the lesions.

A Strain of Connective Tissue Seven Years Old.—An interesting report of a strain of connective tissue isolated in January, 1912, and cultivated for a period of seven years is given by Ebeling (*Jour. Exper. Med.*, 1919, xxx, 531). Transfers of portions of the tissue were made each forty-eight hours into a medium composed of equal volumes of chicken plasma and chick embryo extract, under the usual aseptic precautions. These transfers were incubated at 39° C. on coverslips sealed by vaseline and paraffine, to hollow glass slides. The growth of the transferred tissue was measured by means of a projection apparatus. The rate of growth was such that transplanted fragments became 13 times their original size in forty-eight hours. The rate varied, however, up to as high as 40 times the original size, under the influence of various factors. There was noted an evident increase in the rate of growth in the last five years, thought due to the addition of the embryonic juice to the medium. It was always found that decrease in rate of growth was due to deficient medium or extract, or the presence of alkali at the surface of the slides. Plates are shown.

Streptolysin Production in Carbohydrate Media.—Stevens and Koser (*Jour. Exper. Med.*, 1919, xxx, 539) present a study of various factors influencing the development of hemolysins in cultures of streptococci. A review of previous work is given. Theories of acid inhibition of growth of streptococci with subsequent diminution in hemolysins, as well as the sparing of protein metabolism (through which lysin is elaborated in the bacterial body) in the presence of fermentable carbohydrates thus diminishing lysin production. By incubating cultures of streptococci in beef infusion, peptone, serum broth for ten to fourteen hours and passing through Mandler filters they were able to obtain strongly hemolytic filtrates. Acid production in carbohydrate was followed by comparison to Sorensen series. The growth of the streptococci was followed by plate counts and stained smears. The utilization of carbohydrates by the streptococci, thus producing a luxuriant growth is at the same time accompanied by a lessened lysin production through the sparing of the proteus. The acid production reaching a value of pH 5.5 in eight hours in dextrose media, lessened the vitality of the organisms and thereby proteolysis, and is found to be destructive to hemolysin at incubator temperature. The concentration of the acid produced causes some hemolysis and a coincident brown discoloration of the hemoglobin.

The Bacteriology of Chronic Empyema.—In the past few years the bacteriology of empyema as seen in civil and especially military practice has presented several predominating types of organisms, as principal etiological factors. GORDON (*Jour. Infect. Dis.*, 1920, xxvi, 29) presents a study of the relative occurrence of these organisms and of other bacteria in empyema. The pneumococcus and streptococcus were found to be the principal primary invaders. Secondary post-thoracotomy infection, which is the rule, introduces a number of other bacteria which vary in character and quantity, as the case develops chronicity. Cultures were made on blood, beef infusion agar, from materials obtained by aspiration of pus pockets by syringe before operation, and from a looped needle introduced through a sterile tube inserted through the drainage opening, at weekly intervals. Subsequently for three months type II pneumococcus was found in one of 25 military cases, and in the other 24 hemolytic streptococci were the primary invaders. Green streptococci, Staphylococcus albus and aureus, diphtheroids and chromogenic air bacteria were found as secondary infecting agents. However, two proteolytic bacilli, one an atypical member of the proteus group, the other an atypical member of the Friedländer group were found to be the most common secondary invaders. The cultural and biological characters of these two are given. Agglutinins in the sera of 20 of 25 patients, titred from 1 : 400 to 1 : 3200 against a representative streptococcus pyogenes (Holman's classification) isolated from the chest fluid. The absence of streptococci in culture from empyema fluids at the time the serum was obtained would indicate an active immunity against those organisms. No agglutinins could be demonstrated against various streptococcus viridans strains isolated from a number of cases. Controls of serum from normal cases were negative.

Serum Reactions in Influenza.—Following their investigation of the etiology of influenza, in the recent epidemic, GAY and HARRIS (*Jour. Infect. Dis.*, 1919, xxv, 414) present results of work on rabbit immune serum, the serum of active and recovered influenza cases, and of persons vaccinated by the injection of a presumably protective dose of a mixed vaccine comprising 18 strains of influenza bacilli. Rabbits were immunized by six to eight injections of a mixed vaccine of ten strains of Bacillus influenzæ grown on "chocolate medium," and killed by suspension in 0.5 per cent. phenolized salt solution. After a first injection of killed organisms, living cultures were employed. Agglutination tests at 37° C. for two hours, with the serum of immunized rabbits, also Pfeiffer's phenomena of bacteriolysis, conglutination and precipitin reactions were negative. Fixation antibodies were found in high dilutions. Agglutination tests with the same serum, incubating three to six hours at 55° C. were positive. A variation in the agglutinability of different strains of Bacillus influenzæ suggests the existence of different groups of the organism. In the series of human cases, agglutination tests at 37° C., conglutination, opsonin, precipitin, and intradermic tests were negative. Fixation reactions were positive in 40 per cent. of vaccinated cases and in one of twenty-nine acute cases; normal and recovered cases were negative. Agglutination tests at 55° C. were positive in from three to six hours in 88 per cent. of acute cases, 46 per cent. of vaccinated and 38 per cent. of recovered cases. The few normal cases tested were uniformly negative.

HYGIENE AND PUBLIC HEALTH

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Experiments on the Nasal Route of Infection in Poliomyelitis.—Flexner and Amoss (*Jour. Exp. Med.*, 1920, xxxi, 123) state that the experiments given in their paper, notwithstanding their seeming diversity, relate to the conditions underlying the states of susceptibility and refractoriness to infection with the virus of poliomyelitis applied to the nasal mucosa. Certain monkeys are highly refractory to inoculation *via* the nares, with the virus of poliomyelitis, apparently in virtue of a power possessed by the nasal mucous membrane to destroy or otherwise render ineffective the virus applied to it. This property of the nasal mucosa appears to be distinct from any specific protective substance active upon the virus which may occur in the blood. An effective nasal mucous membrane prevents the passage of the energetically applied virus to the brain and spinal cord. The virus of poliomyelitis energetically applied to the nasal mucosa will survive for an undetermined period of time upon an ineffective, but for a relatively brief period of time upon an effective membrane. The